

WHAT IS CLAIMED IS:

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1. A pad structure for a liquid crystal display, comprising:
a substrate;
a plurality of gate pads and data pads formed on the substrate;
an insulating film formed on surfaces of the gate pads and data pads;
a plurality of transparent conductive layers electrically connected to the gate pads and the data pads; and
an anisotropic conductive film formed on the transparent conductive layers to cover entire upper and side surfaces of transparent conductive layers.
2. The LCD pads according to claim 1, wherein the insulating film extends over side surfaces and upper surfaces of the gate pads and the data pads.
3. The pad structure according to claim 2, wherein the insulating film contacts the substrate at end portions of the gate pads and data pads.
4. The pad structure according to claim 1, wherein the transparent conductive layer includes indium tin oxide.
5. The pad structure according to claim 1, wherein the insulating film is formed by laminating a gate insulating film and a protective film.

6. A pad structure for a liquid crystal display including a grinding area, a pad contact area and an anisotropic conductive film deposit area, the pad structure comprising:

a tape carrier package layer to receive a driving signal;

an anisotropic conductive film formed on a lower portion of the tape carrier package layer and covering at least the pad contact area of the liquid crystal display;

an insulating film defining a plurality of contact holes therethrough, the insulating film disposed on a lower portion of the anisotropic conductive film in the pad contact area of the liquid crystal display;

a plurality of gate and data pads; and

a transparent conductive layer electrically connecting the gate and data pads to the anisotropic conductive film through the contact holes,

wherein upper and side surfaces of the gate and data pads are completely covered by the insulating film and the transparent conductive layer.

7. The pad structure according to claim 6, wherein the insulating film is formed on side surfaces and upper parts of the gate and data pads.

8. The pad structure according to claim 7, wherein the gate and data pads are formed on a substrate, and the insulating film contacts the substrate at end portions of the gate pads and data pads.

9. The pad structure according to claim 6, wherein a gate insulating film is formed between the gate and data pads.

10. A method for manufacturing a liquid crystal display having a pad structure, the method comprising the steps of:

forming a plurality of gate pads at predetermined portions on a substrate;

forming an insulating film to cover the gate pads;

forming data pads on the insulating film;

forming a protective film to cover the data pads;

exposing portions of the gate and data pads;

forming a transparent conductive layer to be electrically connected to the exposed portions of the gate and data pads; and

forming an anisotropic conductive film on the transparent conductive layer to entirely cover upper and side surfaces of the transparent conductive layer.

11. The method according to claim 10, wherein the step of forming the insulating film includes covering side surfaces of the gate pads with the insulating film.

12. The method according to claim 11, wherein the step of forming the insulating film further includes covering a portion of the substrate adjacent to the side surfaces of the gate pad with the insulating film.

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16. The method according to claim 15, after the step of forming the data pad, further comprising a step of grinding portions of the gate insulating film and the protective film disposed in the grinding area to expose a portion of the substrate in the grinding area.

17. The method according to claim 16, wherein, after the grinding step, portions of the gate insulation film and the protective film remain between the grinding area and side surfaces of the data pads.

18. The method according to claim 15, further comprising a step of forming a tape carrier package layer after the step of forming the anisotropic conductive film.

19. A pad structure for a liquid crystal display, comprising:
a substrate;
at least one pad formed on the substrate;
an insulating film formed on the pad, the insulating film covering side surfaces of the pad and a portion of the substrate adjacent to the side surfaces of the pad; and
at least one conductive layer connected to the pad through contact holes defined through the insulating film.

20. A liquid crystal display formed on a substrate, comprising:
an active region defined at a first portion of the substrate; and
a pad contact area defined on a second portion of the substrate adjacent to the active

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at least one conductive layer connected to the pad through contact holes defined

wherein the insulating film covers side surfaces of the pad and a portion of the substrate

1. *Chlorophyll a* (Chl a) content was determined using a spectrophotometer (Shimadzu UV-1601) at 663 nm. The concentration of Chl a was calculated using the following equation: $\text{Chl a (mg/L)} = 12.7 \times \text{OD}_{663}$.